AMENDMENTS TO THE CLAIMS

Claims 1-12 **(Cancelled)**

13. **(New)** A method for characterizing an extrudate flowing under die tooling comprising:

(a) emitting a plurality of laser signals at a plurality of vertically displaced locations from a laser system responsive to detection of the lower edge of an extrudate exiting from a die to emit successive digital signals upon the detection of said lower edge;

(b) applying said digital signals successively from said laser system to a micro controller;

(c) activating a flash by said micro controller;

(d) providing at least one camera with a CCD sensor that is activated by the micro controller and synchronized with the flash;

(e) recording the times of said successive laser signals and digital signals; and

(f) providing a central processor that instantaneously calculates an equation for the combined swell and sag curve of the extrudate and generates separate sag and swell components corresponding to said curve.

14. **(New)** The method of claim 13 wherein said plurality of laser signals are generated by a laser which is moved vertically as said signals are generated.

15. **(New)** The method of claim 13 wherein said plurality of laser signals are generated by a plurality of vertically displaced lasers.

16. **(New)** The method of claim 15 wherein said plurality of laser signals are sequentially generated by successively positioned vertically displaced lasers.

17. **(New)** The method according to claim 13 wherein the CCD sensor is a two-phase charge-coupled sensor with a transparent electrode.

18. **(New)** The method according to claim 14 wherein said laser is moved vertically at a speed of no more than 2 m/s.

19. **(New)** The method according to claim 17 wherein the position of said vertically moving laser is sensed with a tolerance of 1 mm.

20. **(New)** The method according to claim 13 wherein the duration of said flash is no more than 1/9,100 second.

21. **(New)** The method according to claim 20 wherein the duration of said flash is within the range of 1/9,100 to 1/28,000 second.

22. **(New)** The method according to claim 13 further comprising providing feedback software which functions to adjust production parameters of die design, temperature and shear rate.

23. **(New)** The method according to claim 13 wherein said extrudate is a thermoplastic polymer.

24. **(New)** The method according to claim 23 wherein the extrudate is selected from the group consisting of polyethylene, polypropylene, polystyrene, polyvinyl chloride, polyamide,

polymethyl methacrylate, polyoxymethylene, acrylonitrile-butadiene-styrene, polycarbonate, polyacrylonitrile, styrene-acrylonitrile and ethylene vinyl acetate.

25. **(New)** The method according to claim 13 wherein said extrudate is selected from the group consisting of polyethylene and polypropylene and mixtures thereof.

26. **(New)** The method according to claim 13 wherein said extrudate comprises polyethylene.

27. **(New)** The method according to claim 13 further comprising providing three of said cameras and characterizing the behavior of said extrudate exiting said die in three dimensions.

28. **(New)** The method according to claim 13 wherein a single camera is employed to characterize the behavior of said extrudate exiting from said die in two dimensions.

29. **(New)** The method according to claim 13 wherein the onset of melt fracture of said extrudate is detected.

30. **(New)** The method according to claim 13 further comprising calculating the relaxation time of said extrudate.